

# Longevity Guide

*Long Lasting - your confidence gift*

## WHAT DO YOU ACTUALLY MEAN BY LONG LASTING?

Wouldn't it be nice if we gave you something like a 10 year warranty? Let us explain why we don't offer a warranty on lifespan, and few of our competitors will either with Weathering or Galvanised Steel edges.

Weathering Steel is known by various brand names, most notably Corten. The abbreviation of the original brand name Cor-Ten, highlights its corrosion resistance and tensile strength as key qualities. These were pretty handy for coal wagons and bridges. It's super durable... and is therefore useful as garden edging as well.

It is helpful to understand that Weathering Steel is designed to be used in the air. Here the humidity and oxygen assist to develop the natural look of a rusty patina that offers its own protection over time. In the ground however, it behaves similarly to mild steel; slowly corroding. Corrosion in the ground typically happens slowly and thickens up the steel in the process. Corrosion of buried steel does impact structural integrity faster than corrosion in air would have.

Therefore, predicting lifespan is problematic, the patina formation process is out of our control and influenced by various local circumstances. It's impossible to adopt a one size fits all promise with the variety of soil and atmospheric conditions that can impact upon this natural process. Not to scare you off, but there are examples of buildings/bridges that had to be demolished for the lack of a patina forming (Omni Coliseum in Atlanta - after 25 years is one example).

The zinc in the Galvanised Steel coating, on the other hand, reacts with oxygen to form a thin oxide layer. This layer then reacts with moisture to produce zinc hydroxide, which further reacts with carbon dioxide to create zinc carbonate. Unlike iron oxides, which flake off easily, zinc carbonate is resilient, chemically stable, and adheres firmly to the surface of the metal. This layer acts as a protective barrier that prevents air and moisture from contacting the underlying substrate and prevents further corrosion and deterioration.

While the carbonate layer has protective properties, zinc is a reactive metal and will slowly erode due to corrosion over time. The rate of corrosion of zinc is, however, 1/30th that of steel. Therefore, zinc metals and components coated with zinc-based products have a significantly longer service life than other metals when exposed to the atmosphere.

*Steely Trust*

## SO WHAT LIFESPAN CAN I EXPECT?

We use quality tested Weathering & Galvanised Steel to maximise the chances of achieving a lengthy lifespan for our products. Our supply and manufacturing partners are ISO certified across all areas and we receive a test report with every batch of weathering and galvanised steel containing strength analysis, thickness, coating thickness (zinc), coating composition (zinc) and steel composition. The Weathering Steel we buy follows the international standards for Weathering Steel. All Weathering Steel regardless of brand, whether this is Corten, Redcor, SSAB or others have very similar composition in line with the used standard for Weathering Steel (ASTM, EN ISO, BS ISO, DIN, etc) with the same performance expectations.

With soil and atmospheric conditions varying greatly and a swathe of outlier conditions found in the field, we can't provide lifespan certainty by way of a guarantee, but on average Weathering Steel lasts structurally for ten years or more and Galvanised fifteen years or more.

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*What can I do*

## TO LENGTHEN PRODUCT LIFESPAN?

The long-lasting claim of Weathering Steel products is based on its natural tendency to build and maintain a fine rust layer called the patina. This trait adds a natural and bespoke look that continues to structurally protect the steel as it doesn't flake like mild steel. For Galvanised Steel this is about the sacrificial nature of zinc to increase overall longevity.

To read about actions you can take and design considerations that matter when looking for longevity in your steel edging choices, see our 'Product Care' guide.